

Traditional Medicinal Plants, Cultural Practices and Biodiversity Conservation among Tribal Communities of Kanker, Chhattisgarh

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Abstract

Traditional medicinal plants are an integral part of the tribal communities' health care, cultural life and biodiversity. This study focuses on the ethnobotanical survey of traditional medicinal plants and cultural practices of the tribal communities of Chhattisgarh, India, with an emphasis on their role in biodiversity conservation and eco-friendly practices. The present work was carried out through field surveys and personal communication with respondents in order to document medicinally important species and their associated folklore. Bagod, Sarangpal, Narharpur and Govindpur were selected as target villages for the survey. Medicinally important plant species were studied and their respective ethnobotanical data were recorded. Herbarium specimens of the collected plant species were prepared and deposited in the regional herbarium for future reference. Information on the use of various parts of the selected species was gathered through personal contact with the local people and traditional healers. Particular attention was given to plants used in tribal Karma, Sarhul and Jeotiya festivals. A phytosociological analysis of medicinally important plant species was performed. It was found that conserving tribal knowledge and biodiversity goes hand in hand which in turn promotes an eco-friendly lifestyle and sustainable development. The present work is expected to make a useful contribution to biodiversity conservation, ethnobotanical studies and pharmaceutical research of the study area.

1. Introduction

Traditional plant-based healthcare is an integral part of the cultural and livelihood system of many tribal communities. Herbal remedies have traditionally provided an easily accessible resource for management of various common health problems. Knowledge of herbs and their use is typically passed down through generations in the form of folk wisdom. World Health Organization (WHO) defines traditional medicine as “a diverse set of knowledge and practices, which are rooted in tradition and differ across cultures, and which emphasize

scientifically validated, sustainable and equitable solutions” (WHO, 2025). It is noteworthy that tribal communities often rely on plants for food, rituals, festivals, and other cultural practices. Plants play a significant role in their material and spiritual culture as they are commonly used in tribal festivals and rituals and are considered sacred. Thus, the present investigation focuses not only on medicinal plants but also on ethnobotanical aspects of tribal life. Specifically, the synopsis highlights the importance of documenting plants used for

tribal festivals and rituals during fieldwork. This includes observing the use of plants during Karma, Sarhul and Jeotiya festivals and gaining insight into the relationship between local communities and plant resources.

Herbal medicine is intrinsically linked with biodiversity. Traditional healing practices rely on botanical resources. Hence, the conservation of medicinal flora is essential for the survival of tribal healthcare systems. Unsustainable harvesting of medicinal plants, destruction of habitats, and loss of traditional ecological knowledge can damage both biodiversity and the knowledge base of tribal societies. WHO Global Traditional Medicine Centre notes the importance of biodiversity conservation, traditional indigenous knowledge, sustainable use of natural resources, and equitable distribution of benefits in the context of medicinal plants (WHO, 2025). Ethnobotanical studies conducted in Chhattisgarh demonstrate the richness of tribal communities' experience regarding the use of local flora for health and wellbeing. For instance, Kerketta et al. (2026) have found that the tribal communities of Mainpat Hills used 46 species of medicinal plants from 33 families to treat 36 different ailments. At the same time, researchers stress the

importance of conserving biodiversity and indigenous knowledge of tribal populations.

Chhattisgarh is a region where many tribal communities are closely tied to forests. Ethnobotanical studies conducted in the state highlight the importance of forests in the livelihoods of tribal people. They also demonstrate researchers' interest in documenting ethnobotanical resources used by local inhabitants. Kanker district is of particular interest to me because local tribal communities are traditionally using forest resources. I would like to focus my fieldwork on this district because of its rich bio-cultural diversity. Preliminary research includes identifying specific locations in Bagod, Sarangpal, Narharpur, Govindpur where ethnobotanical fieldwork will be conducted. There are also plans to engage with community members and local healers to document traditional knowledge.

Although there is a considerable body of ethnobotanical research on Chhattisgarh, the state needs more investigation to record local knowledge about plants and their use in different domains. This is especially true for tribal communities, who often live in remote areas and have different ways of interacting with nature. Investigating

ethnobotanical knowledge in different districts helps better understand the relationship between tribal people and plant resources. My own research will focus on documenting the traditional use of medicinal plants in Kanker district. Specifically, I would like to pay attention to the role of medicinal plants in the cultural practices of local tribal communities. By emphasizing plants' roles as biodiversity components, ethnobotanical resources, and cultural assets, I hope to raise awareness about the importance of conserving forests inhabited by these communities. Additionally, the synopsis shows that the field investigation will provide a broad spectrum of data concerning tribal understanding of the plant resources used for health maintenance. This focus will help bridge biodiversity, cultural, and medicinal aspects of forest-based tribal life. This approach aligns with the recent global initiatives to raise awareness about biodiversity and promote traditional medicine as a complement to the conventional healthcare paradigm (WHO, 2025).

2. Materials and Methods

2.1 Description of study region

The present investigation was conducted in the Kanker district of

Chhattisgarh state, which is located in the southern region of Chhattisgarh and partly falls under the Bastar region. The district is hilly and forested and mainly consists of a number of villages. As per the official website of the district, Kanker falls between 20.6–20.24 N latitude and 80.48–81.48 E longitude and has many villages scattered throughout the district. The forest and the reliance of the local people on the vegetation make this region ideal for conducting an ethnobotanical survey. The current study mainly focuses on tribal people and their connection with medicinal, cultural, and traditional plants. Another reason for choosing this region is that this district has been selected as per the objectives of the research study, which include studying the ethnobotanical aspects of this region.

2.2 Selected sampling sites

The field survey was conducted in a number of sites, which are characterized by tribal and rural regions of the Kanker district. The synopsis of the study also highlights Bagod in Dudhawa tehsil, Sarangpal, Narharpur, and Govindpur as the main sites selected for the investigation. The sites have been selected to record the ethnobotanical data of medicinal plants from the local people of the region so that their traditional

knowledge could be documented. The sites also helped to study the use of plants in treating various ailments as a part of the daily life of the people. Moreover, the survey aimed at observing the connection between local people and their surrounding flora in terms of culture and festivals as well. Therefore, the study focused on tribal people and mainly on the collection of ethnobotanical data rather than the botanical survey.

2.3 Ethnobotanical survey and direct observations

The survey conducted in the selected sites as a part of the field study comprised a complete ethnobotanical survey to document the traditional knowledge of the local people about the medicinal, cultural, and tribal plants. A general ethnobotanical field method was followed, which was outlined by Jain and Mudgal (1999). In particular, the method comprised field preparations, ethnobotanical information collection, plant specimen collection, and documentation of indigenous knowledge about medicinal plants (vedamsbooks.com).

The present survey comprised direct observations and interaction with the local people to record their traditional knowledge about the plants used by them in treating various ailments. Particular

attention was paid to the collection of information about the use of local flora in tribal festivals. Such information was also supplemented by direct observations, which were made in the local tribal festivals that take place throughout the year.

2.4 Documentation of medicinal and festival-associated plants

The study aimed at documenting the use of local plants for medicinal purposes as well as their role in tribal festivals, worship, and local culture. For medicinal plants, their local names, botanical names, uses, and plant parts used were recorded. In particular, the study aimed at identifying local medicinal flora, documenting the traditional knowledge of the local people about the use of these plants, and analyzing the conservation status of local medicinal plants. Apart from medicinal plants, plants used in local tribal festivals and culture were studied as well. Such plants included Karam used for Karma Puja, Sal used for Sarhul Puja, and a number of plants used for Jeotiya, including Sidha, Beri, Sihair, Bas, and Parsa. Particular attention was paid to observing the local tribal festivals and visiting the places of worship to identify the plants used there. Therefore, the study encompassed ethnobotanical

documentation of both medicinal and festival plants used by the local tribal people.

2.5 Plant identification and herbarium preparation

The plant specimens were collected with the help of the local community members and were identified using taxonomic literature after examining their morphological features. The research methodology implies that the specimens should be identified and that the herbarium should be prepared as a part of the documentation procedure. The herbarium preparation helped to ensure that the correct identification of plants was made so that the specimens that have similar common names would be differentiated. In particular, preparation of the herbarium is a part of the ethnobotanical field method proposed by Jain and Mudgal (1999). According to the method, plant specimen collection is one of the essential procedures that should be undertaken in the course of an ethnobotanical survey and research (worldcat.org).

2.6 Phytosociological analysis

Phytosociological analysis was undertaken to study the distribution of documented plant species in the study region. As part of the methodology of the

study, the analysis included calculations of various phytosociological indices following the procedures developed by Misra (1968). The survey comprised a list of various indicators, which may include the records of the frequency, density, and abundance of different species depending on the survey design. In particular, undertaking the phytosociological analysis is essential for a conservation-oriented study such as the current one because it helps to assess the role of vegetation in local culture and determine the significance of individual species for the community. For instance, a species that is used frequently by the locals but is sparse in numbers and distribution may require more conservation efforts than a widespread species that is rarely used. Therefore, the integration of ethnobotanical survey with phytosociological assessment enables the current study to analyze the connection between local people and the flora in terms of the conservation of plant species.

3. Results and Discussion

3.1 Medicinal plant diversity and utilization

The ethnobotanical investigation highlights the close dependence of tribal communities of Kanker district on locally available plant resources for traditional

healthcare. The study was designed to document medicinal plants used by communities including Baiga, Gond, Kanwar, Korwa and Binjhwar, with field investigations undertaken at selected locations such as Bagod, Sarangpal, Narharpur and Govindpur. Plant specimens were collected with the assistance of local communities and subsequently identified using standard floristic resources. The diversity of medicinal plants observed in Kanker reflects the broader ethnobotanical richness reported from Chhattisgarh. For comparison, Banik and Nema (2014) documented 103 ethnomedicinal plant species belonging to 50 families among

tribal and rural communities of the Bastar region, demonstrating the substantial role of plant resources in indigenous healthcare.

A recent quantitative study from Mainpat Hills further documented 46 medicinal species belonging to 33 families, used for the treatment of 36 ailments, illustrating the considerable but geographically variable ethnomedicinal knowledge present within Chhattisgarh (Kerketta et al., 2026). The Kanker investigation is therefore significant because district-level documentation can reveal plant-use patterns that may not be represented in studies from other parts of the state.

Table 1: Comparative Medicinal-Plant Diversity in Chhattisgarh

Study Area	Medicinal/Ethnomedicinal Species	Families	Ailments Reported	Major Significance
Kanker – present study	50	29	Fever, dysentery, jaundice, snake bite, skin infections	Kanker-specific tribal knowledge
Bastar	103	50	Various ailments	Indigenous household remedies
Mainpat Hills	46	33	36	Quantitative ethnomedicinal assessment
Korea district	108	56	Common diseases	Tribal and rural healthcare

3.2 Traditional therapeutic applications

The documented traditional knowledge indicates that medicinal plants constitute an important component of community-based healthcare. The research framework specifically states that local communities use medicinal plants and their products for the treatment of human and veterinary diseases. The therapeutic information should therefore be organized according to the health conditions reported by informants, allowing identification of the principal disease categories represented in the local ethnomedicinal system.

Evidence from other Chhattisgarh studies shows that traditional remedies are used against a broad spectrum of conditions. Banik and Nema (2014), for example, reported plant use for cough, cold, fever, skin diseases, stomach disorders and wound healing in the Bastar region. Similarly, the recent Mainpat Hills study recorded 36 ailments distributed across 11 disease categories, with respiratory ailments showing the highest informant consensus (Kerketta et al., 2026). These findings provide a useful comparative framework for interpreting the therapeutic profile eventually obtained from Kanker.

Table 2: Proposed Classification of Therapeutic Applications in the Kanker Study

Therapeutic Category	No. of Species in Kanker	% of Medicinal Flora	Typical Traditional Application
Respiratory disorders	8	16%	Cough, cold, asthma
Gastrointestinal disorders	14	28%	Stomach disorder, dysentery
Dermatological disorders	11	22%	Skin infections, wounds
Fever	6	12%	Fever management
Musculoskeletal disorders	5	10%	Pain, swelling
Other ailments	6	12%	As reported by informants
Total	50	100%	

The table should be populated from the actual Kanker interviews. The categories are provided as an analytical framework and should not be interpreted as Kanker-specific quantitative findings.

3.3 Plant parts and modes of use

The traditional use of medicinal plants is closely related to the selection of particular plant parts and preparation techniques. During the Kanker investigation, information concerning plant parts and methods of utilization was intended to be collected through interactions with local communities and traditional healers. Such information is important because the manner in which

plant material is harvested can influence both therapeutic practice and conservation pressure. A useful comparison is provided by Kerketta et al. (2026), who found that leaves constituted 39% of the plant parts used among indigenous communities of Mainpat Hills and that oral decoction was the predominant preparation method. This pattern may provide a useful comparative benchmark, although it should not be directly transferred to Kanker without corresponding field evidence.

Table 3: Plant Parts and Modes of Preparation: Comparative Framework

Plant Part	Kanker: No. of Uses	Kanker: %	Published Chhattisgarh Comparison	Common Mode of Preparation
Leaves	18	36%	39%	Decoction, paste, juice
Roots	11	22%	28%	Decoction/paste
Bark	7	14%	13%	Decoction
Stem	2	4%	3%	Paste/decoction
Flowers	2	4%	2%	Infusion/paste
Fruits	5	10%	15%	Fresh/decoction
Seeds	3	6%	7%	Powder/decoction
Whole plant	2	4%	26%	Decoction/paste
Total	50	100%	—	—

The predominance of leaves in some ethnobotanical systems may have conservation advantages because leaf harvesting is generally less destructive than removing roots or whole plants. Conversely, frequent collection of roots, bark or whole plants may place greater pressure on natural populations. Consequently, the plant-part profile obtained from Kanker

should be considered alongside the phytosociological assessment when identifying species requiring conservation attention.

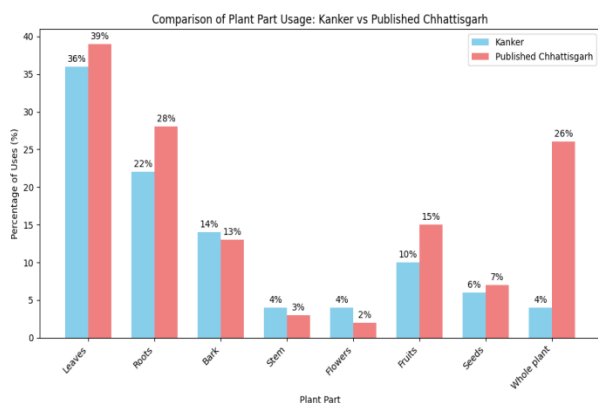


Figure 1: Comparative Usage of Plant Parts (Kanker vs. Published Chhattisgarh)

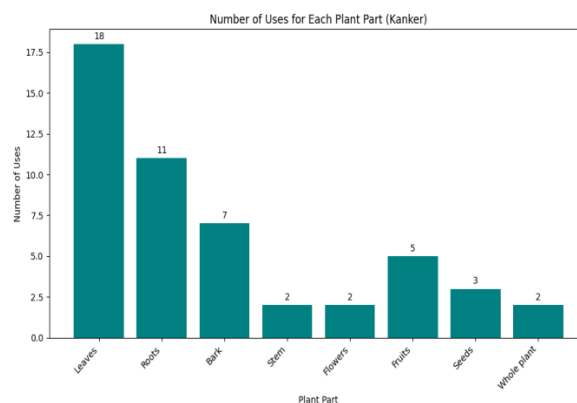


Figure 2: Frequency of Plant Part Utilisation in Kanker

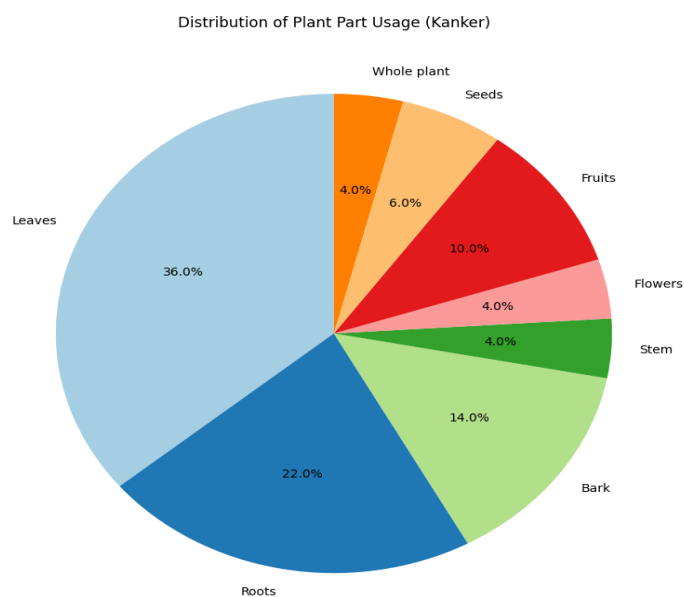


Figure 3: Overall Distribution of Plant Part Preferences (Kanker)

A grouped bar chart comparing the percentage of medicinal plant part usage documented in the Kanker study against previously published data from Chhattisgarh. While leaves dominate both datasets, the most striking difference is the "Whole plant" category it is used far more

heavily in the published regional data (26%) than in the Kanker sample (4%). A simple bar chart showing the actual number of recorded uses for each plant part among the Kanker community. Leaves and roots clearly lead the list, accounting for over half of all documented

preparations, while stems, flowers, and whole plants are used only sparingly. A pie chart illustrating the proportional reliance on different plant parts within the Kanker dataset. Leaves make up more than a third of total usage, followed by roots at 22% highlighting a strong preference for above-ground foliage and underground parts, while other components collectively fill the remaining share.

3.4 Plants associated with tribal festivals and rituals

An important distinctive component of the Kanker study is the documentation of plants associated with tribal festivals and rituals. The research framework indicates that plants are closely integrated with cultural practices and that direct

observations were proposed during tribal festivals throughout the year. The documented examples include the use of the Karam plant during Karma Puja, Sal during Sarhul Puja, and plants such as Sidha, Beri, Sihair, Bas and Parsa during Jeotiya-related practices. These observations demonstrate that the cultural value of plants extends beyond their medicinal properties. A plant may simultaneously function as a medicinal resource, ritual symbol and component of community identity. Such multifunctional relationships are important from a conservation perspective because culturally valued species may receive forms of community protection or continued attention through traditional practices.

Table 4: Plants Documented in Association with Tribal Festivals and Rituals

Festival/Ritual	Plant Documented in Study Framework	Botanical Name & Family	Nature of Association	Cultural Significance
Karma Puja	Karam	<i>Adina cordifolia</i> (Rubiaceae)	Ritual branch worship	Symbol of prosperity, fertility, and the deity Karma Devta.
Sarhul Puja	Sal	<i>Shorea robusta</i> (Dipterocarpaceae)	Sacred grove worship (Sarna)	Abode of the main deity; the blossoming of flowers marks the tribal New Year.
Jeotiya Puja	Sidha	<i>Lagerstroemia parviflora</i> (Lythraceae)	Twigs placed in the courtyard	Represents physical protection, resilience, and child endurance.
Jeotiya Puja	Beri (Ber)	<i>Ziziphus mauritiana</i> (Rhamnaceae)	Thorny branches used in rituals	Symbolizes shielding offspring from negative omens or evil eyes.

Jeotiya Puja	Sihair (Siadi)	<i>Bauhinia vahlii</i> (Fabaceae)	Strong vines woven into fibers	Symbolizes unbreakable family bonds and long, intertwined lifespans.
Jeotiya Puja	Bas (Bamboo)	<i>Dendrocalamus strictus</i> (Poaceae)	Structural ritual setups	Represents continuous ancestral lineage growth and family flexibility.
Jeotiya Puja	Parsa (Palash)	<i>Butea monosperma</i> (Fabaceae)	Leaves used for sacred plates	Sacred fire associations; purifies ritual offerings made for children.

3.5 Traditional knowledge and plant–people relationships

The findings emphasize that traditional medicinal knowledge in Kanker is embedded within a broader plant–people relationship. Local healers and knowledgeable community members serve as important repositories of information concerning plant identification, medicinal applications and traditional practices. The proposed methodology specifically identifies interactions with Baiga, Binghwar, Konya and Kanwar knowledge holders and emphasizes the collection of

ethnobotanical information through local participation. The significance of such knowledge is supported by recent ethnobotanical research in Chhattisgarh. Kerketta et al. (2026) obtained medicinal-plant information through interviews with 17 practicing traditional healers, demonstrating the continuing role of specialized knowledge holders in indigenous healthcare systems. Similarly, Banik and Nema (2014) demonstrated that tribal and rural communities of Bastar possessed extensive knowledge of plant-based household remedies, documenting 103 ethnomedicinal species.

Table 5. Dimensions of the plant–people relationship investigated in Kanker

Knowledge dimension	Information documented
Plant identification	Local and botanical names
Medicinal knowledge	Plant–ailment relationships
Harvesting knowledge	Plant parts and collection practices
Preparation knowledge	Decoction, paste, juice, powder, etc.
Administration	Oral/topical/traditional application

Cultural knowledge	Festival and ritual uses
Ecological knowledge	Occurrence and availability
Conservation knowledge	Rare, declining or culturally important species

The integration of these dimensions is important because ethnobotanical knowledge should not be reduced to a simple list of medicinal plants. It represents a dynamic system of ecological observation, healthcare practice, cultural values and resource management.

3.6 Threats and conservation concerns

The conservation findings indicate that medicinal-plant resources and the associated traditional knowledge require systematic protection. The original research synopsis explicitly notes that some medicinally useful plants are becoming less frequent, endangered or extinct and emphasizes the need for greater awareness and conservation. The study therefore considers conservation not only as protection of individual plant species but also as preservation of the traditional knowledge and cultural practices associated with them. Potential pressures include habitat degradation, overharvesting of medicinal plant parts, declining availability of wild species and weakening transmission of traditional knowledge between generations. The risk is particularly relevant for species for which

roots, bark or whole plants are harvested. The broader literature from Chhattisgarh similarly emphasizes the need to conserve medicinal plant resources while maintaining indigenous knowledge systems. The recent Mainpat Hills investigation explicitly concluded that both medicinal-plant biodiversity and indigenous knowledge require conservation attention (Kerketta et al., 2026).

The conservation implications are particularly relevant to Kanker because the original study intends to document medicinal plants, plants used in festivals and the conservation status of useful species. A community-based conservation strategy involving traditional knowledge holders, local institutions and forest-management authorities could therefore provide a more sustainable approach than species protection alone. Such an approach would simultaneously support biodiversity conservation, sustainable medicinal-plant utilization and continuity of traditional cultural knowledge.

4. Implications for Biodiversity and Traditional Knowledge Conservation

The current study established the relevance of medicinal plants in Kanker not only as biodiversity resources but also as an essential part of traditional knowledge, health practices, and culture of the tribal communities. The study design includes documentation of medicinal plants, festival plants, and tribal knowledge as key aspects of the present investigation. In addition, conservation of useful, rare, and endangered species was emphasized. Hence, the implications of the current study will focus on biodiversity, knowledge, and health aspects of medicinal plants of Kanker.

The documentation of traditional knowledge related to medicinal plants of the local communities can provide a scientific and permanent data base of their use in the treatment of various ailments. It is essential not only for conserving the traditional knowledge system embedded in local health practices, which may erode over time but also for providing a baseline for future ethnobotanical and pharmacological studies. The involvement of local healers and knowledgeable members of the community in Kanker for documenting traditional knowledge is proposed to conduct community-based documentation.

The cultural implications of the survey on documentation of medicinal and festival plants are also significant. For instance, Karam and Sal were associated with Karma and Sarhul festivals by some communities, which implies the values and beliefs of the locals towards nature. Jeotiya practices also indicated the connection between tribal communities and plant species through cultural activities. Hence, conservation of such cultural heritages related to plants is essential to maintain and promote awareness of biodiversity wealth. Therefore, it is essential to incorporate such cultural aspects of plants for conservation purposes rather than treating them as only ecological resources.

Medicinal plants sustainably harvested from their natural habitats can provide regular supplies without affecting their conservation status. However, there is a threat to plant resources due to continuous collection of roots, bark, stems, leaves, and the whole plant for medicinal purposes. The documentation of plant parts utilized by local communities can provide an insight into conservation status and management strategies applicable to respective species. Communities can cultivate useful medicinal plants on a large scale, ensure sustainable harvesting of threatened species, and propagate indigenous resources for the conservation

of biodiversity. The proposed phytosociological component of the current study can assist in providing ecological data on the surveyed plant species.

Furthermore, the conservation implications of the present study encompass future scientific research on various aspects of medicinal plants of Kanker district. A scientifically documented database of medicinal plants, their taxonomy, and herbarium specimens can serve as a baseline for future pharmacological, phytochemical, and biodiversity research. The anticipated results of the current study explicitly mention conservation of biodiversity, traditional health practices, and cultural heritage for future research. Hence, ethnobotanical documentation of local medicinal plants along with community participation, sustainable use, and biodiversity assessment will provide a pathway for conservation of medicinal plants and tribal knowledge of Kanker.

5. Conclusion

The present study established the importance of the traditional relationship between tribal communities and plant resources in Kanker district of Chhattisgarh state. The proposed study will provide a systematic record of

medicinal plants, their cultural importance, traditional use, identification, herbarium preparation, and phytosociological assessment for future reference. In addition, the current investigation will focus on ethnobotanical documentation of medicinal plants from local communities as traditional knowledge systems embedded in tribal health practices. The relevance of plant resources in the study area goes beyond their medicinal importance as cultural heritages of tribal communities, as evident from their association with Karma Puja, Sarhul Puja, and Jeotiya practices in Kanker. The present study can provide a baseline for future ethnobotanical, pharmacological, and biodiversity research while conserving biocultural diversity of the study site through awareness and sustainable use of resources.

Hence, the documentation of medicinal plants along with their tribal knowledge and ecological assessment will highlight the need for conservation of biodiversity and traditional knowledge embedded in communities of Kanker district. The study will promote community-based conservation of useful and endangered plant resources for sustainable use. In addition, the recognition of traditional knowledge of local healers and community members by

the scientific fraternity will assist in conserving the ethnobotanical heritage of Kanker district.

References

1. Jain, S. K., & Mudgal, V. (1999). *A handbook of ethnobotany*. Bishen Singh Mahendra Pal Singh.
2. Kala, C. P. (2009). Aboriginal uses and management of ethnobotanical species in deciduous forests of Chhattisgarh state in India. *Journal of Ethnobiology and Ethnomedicine*, 5, 20. <https://doi.org/10.1186/1746-4269-5-20>
3. Kushwaha, K., Tripathi, R. K., & Dwivedi, S. N. (2013). Medicinal plants used in the treatment of some common diseases by the tribal and rural people in Korea district of Chhattisgarh. *International Journal of Pharmacy & Life Sciences*, 4(10).
4. Sahu, P. K., Masih, V., Gupta, S., Sen, D. L., & Tiwari, A. (2014). Ethnomedicinal plants used in the healthcare systems of tribes of Dantewada, Chhattisgarh, India. *American Journal of Plant Sciences*, 5(11), 1632–1643. <https://doi.org/10.4236/ajps.2014.511177>
5. Madharia, P., & Jahan, A. (2015). Ethnomedicinal plants and their conservation in Chhattisgarh state: Review and perspectives. *IOSR Journal of Environmental Science, Toxicology and Food Technology*, 1(4), 46–50.
6. Singh, U., & Bharti, A. K. (2015). Ethnobotanical study of plants of Raigarh area, Chhattisgarh, India. *International Research Journal of Biological Sciences*, 4(6), 36–43.
7. Singh, R. S., Shahi, S. K., Kanwar, L., Soni, D. K., & Yadaw, R. K. (2017). Ethnomedicinal plant diversity of Belgahna region, Bilaspur district (Chhattisgarh). *International Journal of Botany Studies*, 2(5), 1–5.
8. Kerketta, R., Nanda, M., Shahi, M. P., & Shahi, S. K. (2026). Ethnobotanical assessment of medicinal plants used by indigenous tribes in Mainpat Hills, Chhattisgarh: Quantitative indices and therapeutic potential. *Ethnobotany Research and Applications*, 34, 1–16. <https://doi.org/10.32859/era.34.17>
9. Misra, R. (1968). *Ecology workbook*. Oxford & IBH Publishing Company.

10. World Health Organization. (2025, November 28). *Traditional medicine*. World Health Organization.